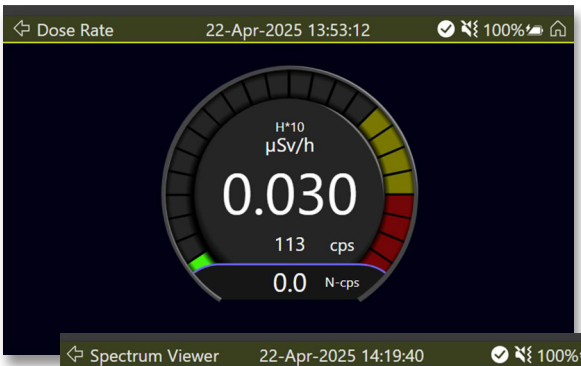
ORTEC®

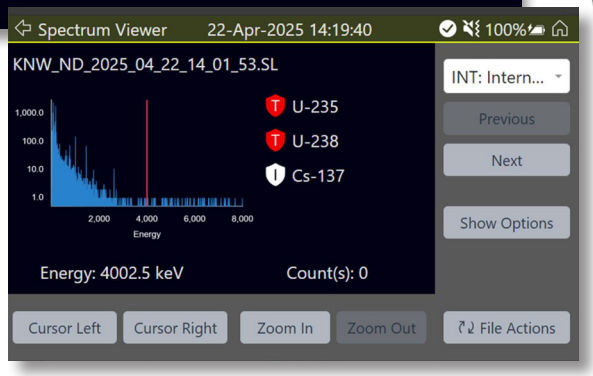
AMETEK®

Detective DX1

The Standard in Nuclear Threat Detection

Redefining Radioisotope Detection and Identification





- **Unmatched Radiological Performance**
- **5-inch Capacitive Touchscreen Display**
- **Intuitive Interface**
- **Improved Ergonomics**
- **Enhanced Electronics**
- **Robust Connectivity**
- **Improved GPS Performance**
- **State-of-the-Art Cybersecurity**
- **Rugged Design**
- **Uninterrupted Operation**

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Introducing the Detective DX1: Redefining Radioisotope Detection and Identification

Experience the future of radioisotope identification with ORTEC's new Detective DX1 — the next-generation High-Purity Germanium (HPGe) Radioisotope Identification Device (RIID) that sets a new standard in performance, ergonomics, and cybersecurity. Building upon the trusted legacy of the Detective-X, the Detective DX1 combines familiar reliability with enhanced features to meet the evolving demands of today's field professionals.

Unparalleled User Experience

5-inch Capacitive Touchscreen Display

Enjoy smartphone-like responsiveness with our new 5-inch PCAP touchscreen display. The high-brightness IPS display ensures exceptional visibility from all angles — even in direct sunlight — and offers superior touch performance, optimized for wet conditions.

Intuitive Interface

Navigate effortlessly with our modernized user interface, inspired by the simplicity of the RadEAGLET-R software. The Detective DX1's touchscreen-friendly applications, including Easy ID and Dose Rate apps, make operation more intuitive than ever. Users will easily adapt between the Detective DX1 and the RadEAGLET-R, thanks to the common UI across ORTEC's nuclear security products.

Improved Ergonomics

The redesigned chassis features a relocated handle for better weight distribution and a more comfortable grip, reducing fatigue during prolonged use.

Advanced Technology and Connectivity

Enhanced Electronics

Experience improved detector resolution thanks to advanced signal processing. The Detective DX1 also boasts a louder speaker with enhanced sound quality and a more powerful vibrator enunciator for heightened threat awareness.

Robust Connectivity

With built-in WLAN (802.11 b/g/n), Bluetooth 5.1, and 10/100/1000M Ethernet, the Detective DX1 ensures seamless communication and data transfer. The USB Type-C connector simplifies PC connections, replacing the older USB-Mini-port.

Improved GPS Performance

Supports both GPS and Galileo constellations, ensuring precise and reliable location tracking across diverse environments and conditions.

State-of-the-Art Cybersecurity

Operating on an embedded Linux OS, the Detective DX1 addresses modern cybersecurity concerns through features such as secure boot, built-in firewall, in-depth static code vulnerability analysis, and validated OS and software updates that can be installed on-site.

Proven Reliability

Rugged Design

The Detective DX1 builds on the reliable Detective-X design with improvements of many components such as a new hardened steel power connector protected by a chassis bumper, and improved rubber feet that enhance stability when in use.

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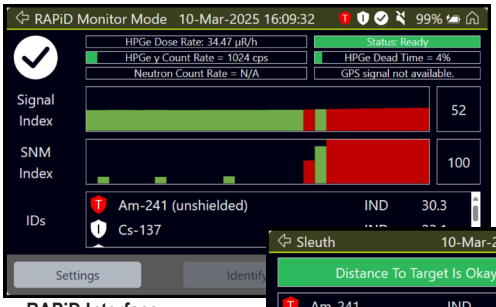
Unique Feature: Uninterrupted Operation

Unlike competitor products, the Detective DX1 can be turned off or on at any point during the detector cool-down or warm-up cycle without risk. This unique capability ensures that the Detective DX1 remains operational without lengthy delays, even if power is lost. This feature is critical for field professionals conducting vital nuclear security missions, where every second counts.

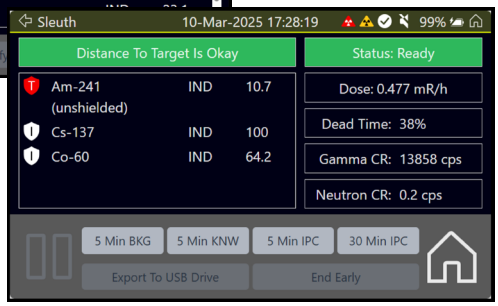
Familiar Reliability with Modern Enhancements

The Detective DX1 retains the core components that made the Detective-X a highly-trusted instrument, including:

- MCA Electronics and Cooler Technology
- Proven Detector and Radioisotope ID Engine
- Sleuth and RAPiD Applications
- RF-Secure Variant Availability



RAPiD Interface



Sleuth Interface

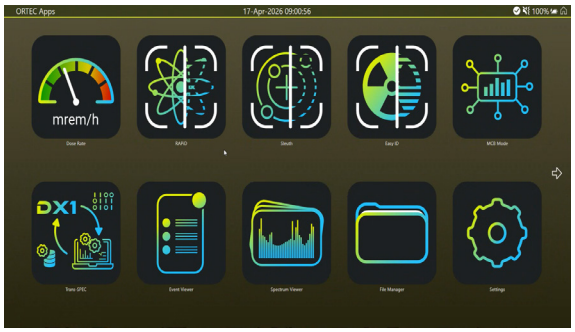
Innovative Software Features

System Apps for Complete Control

Access new system applications: Settings, Spectrum Viewer, File Manager, Nuclide Library, and Event Viewer, all written from the ground up for optimal performance.

Application Manager and Remote Updates

Manage your applications effortlessly and receive remote software updates — including OS updates — without returning the device to the factory.



Global Settings and Enhanced Functionality

Enjoy global settings across all applications, optional automatic date and time setting, screen rotation, and compatibility with the N42.42 2020 spectrum file format.

Why Choose the Detective DX1?

- **Unmatched Radiological Performance** – The Detective DX1, building on the legacy of the Detective-X, offers unparalleled accuracy in identifying potential threats in the field.
- **Modernized Look and Feel** – A sleek design and user-friendly interface make the Detective DX1 both attractive and easy to use.
- **Enhanced Cybersecurity** – Stay protected against modern threats with a secure Linux-based operating system.
- **Improved Ergonomics and Durability** – Designed with the user in mind, the Detective DX1 offers better balance, grip, and ruggedness for challenging field conditions.
- **Future-Proof Technology** – Designed for component longevity and equipped with a new, field-upgradable software platform, the DX1 is built to serve you for years to come.
- **Uninterrupted Operation** – Ensure mission-critical operations continue without delays, even during power interruptions, enhancing reliability in the field.

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Technical Specifications

Detector: P-type high-purity germanium (HPGe) crystal with Coaxial construction. Crystal nominal dimensions 65 mm diameter x 50 mm length.

Cryostat and Cooler: Hardened cryostat, with high-reliability, low-power Stirling cooler.

Cool Down Time: Approximately 6 hours at 25°C.

Gamma Dose Rate: 0.1 mR/h to 2000 mR/h. The dose rate is guaranteed accurate to ±10%.The total measurement uncertainty with all systematic sources of error included is less than ±20%.

For customers with access to a certified dose rate calibration facility, a Dose Rate Wizard allows the system to perform a dose rate calibration. For customers who require a dose rate calibration warranted by the manufacturer, ORTEC offers a dose rate calibration service.

Gamma Energy Range: Detective DX1 and Detective DX1-N = 40 keV to 3 MeV. Detective DX1-8 and Detective DX1-8-N = 40 keV to 8 MeV.

Neutron Detector Module: The optional neutron detector is a large volume segmented lithium-6 fluoride/zinc sulfate (Li_6F/ZnS) detector that is ANSI N42.34 2021 compliant.

File Format: ANSI N42.42 2020.

Interfacing: WLAN (802.11 b/g/n), Bluetooth 5.1, and 10/100/1000M Ethernet. Ready for use with MFK (Mobile Field Kit for DoD users), ORTEC GammaVision, iOS devices and Android devices.

GPS: GPS and Galileo constellations.

Battery: 2 Rechargeable Lithium-Ion batteries. Approximately 8 hours of life at 25°C when HPGe detector is cold.

External Battery: Battery lifetime may be extended indefinitely using optional external battery packs. An external military battery (Model 2590) weighs less than 3.25 lbs. and extends lifetime to >16 hrs.

Operational Temperature: –20°C to 50°C.

Relative Humidity: 95% non-condensing.

Enclosure: IP65 Sealed against ingress of dust and water.

Regulatory Certification verifies, through OSHA-approved NRTL certification authority TÜV SÜD, that the product meets U.S. electrical safety standards (UL/ANSI).

Physical Specifications

Maximum Overall Dimensions (including handle and Ge detector endcap) apply to the specific models and configurations:

Detective DX1 configured without strap
15.5 in L x 5.6 in W x 9.2 in H (39.4 cm L x 14.3 cm W x 23.2 cm H)

Detective DX1 configured with strap
15.5 in L x 6.9 in W x 9.2 in H (39.4 cm L x 17.5 cm W x 23.2 cm H)

Detective DX1 configured with neutron detector
15.5 in L x 6.4 in W x 9.2 in H (39.4 cm L x 16.3 cm W x 23.2 cm H)

Weight 15.95 lbs (7.23 kg) gamma only. 17.35 lbs (7.87 kg) gamma/neutron.

Ordering Information

Model	Description
DX1	Next Generation 3 MeV Enhanced Capability HPGe Radioisotope Identification Device (Gamma only). Includes GPS, mains adapter, vehicle power cable, USB flash drive, shoulder strap, Sleuth, RAPiD, Dose, and Easy ID applications, MAESTRO-PRO software and wheeled hard-sided case.
DX1-N	Next Generation 3 MeV Enhanced Capability HPGe Radioisotope Identification Device (Gamma and Neutron). Includes GPS, mains adapter, vehicle power cable, USB flash drive, shoulder strap, Sleuth, RAPiD, Dose, and Easy ID applications, MAESTRO-PRO software and wheeled hard-sided case.
DX1-8	Next Generation 8 MeV Enhanced Capability HPGe Radioisotope Identification Device (Gamma only). Includes GPS, mains adapter, vehicle power cable, USB flash drive, shoulder strap, Sleuth, RAPiD, Dose, and Easy ID applications, MAESTRO-PRO software and wheeled hard-sided case
DX1-8-N	Next Generation 8 MeV Enhanced Capability HPGe Radioisotope Identification Device (Gamma and Neutron). Includes GPS, mains adapter, vehicle power cable, USB flash drive, shoulder strap, Sleuth, RAPiD, Dose, and Easy ID applications, MAESTRO-PRO software and wheeled hard-sided case.

Accessories	
DX1-ACC-BAT	Lithium-Ion Battery.
DX1-ACC-DUAL-CHGR	Standalone dual battery charger and calibrator.
DX1-ACC-SHOULDER-STRAP	Shoulder Strap with Stylus and Retractable Cord.
DX1-ACC-STYLUS	Stylus
DX1-ACC-SCREEN-PROTECT	Touchscreen Protector
DX1-ACC-VEHCHGR	Vehicle powered adapter cable.
DX1-ACC-PS	Universal AC mains power supply.
DX1-ACC-TRANSPORTCASE	Wheeled Transport Case
DX1-ACC-MANUAL	User's Manual.
DX1-ACC-USBFLASH	USB Mini Flash Drive.
DX1-ACC-NEUTRON-DETECTOR	Neutron Detector
DX1-ACC-COL-ST	Steel Collimator 4 mm thick.
DX1-ACC-COL-W	Tungsten Collimator 4 mm thick.
DX1-ACC-RCFILTER	Low Energy Gamma Filter.
DX1-ACC-EXT-BATT	External Military 2590 battery with charger and cable.
DX1-ACC-2950-CABLE	Cable for Military 2590 battery.
DX1-ACC-RESERVE-COVER	Connector Dustcap, 12 mm
DX1-ACC-TH-CAL	Thoriated Tungsten Electrodes.
DX1-ACC-TRIPOD	Variable length tripod.
DX1-ACC-MOUNT-BRKT	Vertical Mounting Bracket for tripod.
DX1-ACC-TRIPOD-WITH-BRKT	Variable length tripod with vertical mounting bracket.
DX1-OPT-RFSECURE	Removal of WiFi, Bluetooth, and GPS signal capability from Detective DX1 (only at order of new unit).

Services	
DX1-DOSE-CALIB	Certified dose rate calibration service. ORTEC provides a NIST traceable Calibration Certification with measurements all within ±10% for ten dose rates from .01 mR/hr to 2000 mR/hr. The total measurement uncertainty with all systematic sources of error included is less than ±20%. A certified Calibration Certificate is provided. The dose rate calibration is warranted for one year.

ORTEC®
AMETEK®

www.ortec-online.com
Tel. (865) 482-4411 ortec.info@ametek.com
801 South Illinois Avenue, Oak Ridge, TN 37830 U.S.A.
Visit Our Website For International Office Locations

Specifications subject to change
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